

Translation

PATENT COOPERATION TREATY

PCT/JP2003/009761



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference APC-0307	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JP2003/009761	International filing date (day/month/year) 31 July 2003 (31.07.2003)	Priority date (day/month/year) 09 August 2002 (09.08.2002)
International Patent Classification (IPC) or national classification and IPC G01L 23/00, 9/08, F02P 19/00, F02D 35/00, H01L 41/08		
Applicant BOSCH AUTOMOTIVE SYSTEMS CORPORATION		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
- This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 23 January 2004 (23.01.2004)	Date of completion of this report 26 October 2004 (26.10.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.

PCT/JP2003/009761

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ The international application as originally filed/furnished

- ☒ the description:

pages _____ 1-25 _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

- ☒ the claims:

pages _____ 1-21 _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

- ☒ the drawings:

pages _____ 1-9, 13-40 _____, as originally filed/furnished

pages* _____ 10-12 _____ received by this Authority on _____ 12 February 2004 (12.02.2004)

pages* _____ received by this Authority on _____

- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.
PCT/JP 03/09761

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 3, 5, 6, 8-21	YES
	Claims	1, 4, 7	NO
Inventive step (IS)	Claims		YES
	Claims	1-21	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims		NO

2. Citations and explanations

Document 1: JP 2000-180286 A (Hitachi, Ltd.), 30 June 2000
Document 2: JP 10-122948 A (Director General, Agency of Industrial Science and Technology), 15 May 1998

Document 3: JP 59-193327 A (Nissan Motor Co., Ltd.), 1 November 1984

Document 4: JP 4-184130 A (Murata Manufacturing Company, Ltd.), 1 July 1992

Document 5: US 5852245 A (Caterpillar Inc.), 22 December 1998

Document 6: JP 7-45353 A (Nippon Soken, Inc.), 14 February 1995

Claims 1 and 4

The invention set forth in claims 1 and 4 is disclosed in document 1 (paragraphs [0027] and [0030]; [fig. 2]) cited in the international search report, and therefore lacks novelty and does not involve an inventive step. A monocrystal piezoelectric element (7a) (corresponding to a thin film-type piezoelectric element) such as lithium niobate is provided to the ceramic substrates (17 and 18).

Claims 2 and 3

The invention set forth in claims 2 and 3 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report. Document 2 ([claim 1]; paragraph [0007]) sets forth a feature wherein an electrode is positioned on one side of a piezoelectric ceramic thin film. It would therefore be easy for a person skilled in the art to conceive of constituting the sensor set forth in document 1 in such a manner that an electrode is positioned on one side of a piezoelectric element.

Claim 5

The invention set forth in claim 5 does not involve an inventive step in the light of document 1 and document 3 (page 2, lower left column, lines 7 to 11; [fig. 3]) cited in the international search report. Document 3 indicates that a protective film is provided.

Claim 6

The invention set forth in claim 6 does not involve an inventive step in the light of document 1 and document 4 (page 2, lower right column, line 14 to page 3, upper left column, line 6) cited in the international search report.

Claim 7

The invention set forth in claim 7 lacks novelty in the light of document 5 (paragraph 2) cited in the international search report. Document 5 indicates that a sensor comprising a piezoelectric element (50) is positioned within the combustion chamber of an internal combustion engine in order to measure the internal pressure of an internal combustion engine.

Claim 8

The invention set forth in claim 8 does not involve an inventive step in the light of documents 2 and 5 cited in the international search report. Document 2 sets forth a piezoelectric sensor which uses a piezoelectric element comprising a thin-film nitride or oxide. It would be easy for a person skilled in the art to employ said thin-film piezoelectric sensor in the detection of internal pressure in an internal combustion engine.

Claims 9 to 14

The invention set forth in claims 9 to 14 does not involve an inventive step in the light of documents 1 to 5 cited in the international search report. Determining where to earth a circuit is merely a design feature which could be accomplished as necessary by a person skilled in the art.

Claims 15 to 21

The invention set forth in claims 15 to 21 does not involve an inventive step in the light of documents 1 and 6 cited in the international search report. Document 6 indicates that an internal pressure sensor is mounted to an auxiliary part for an internal combustion engine, therefore it would be easy for a person skilled in the art to combine the measurement device set forth in document 1 with an auxiliary part for an internal combustion engine to function inside a combustion chamber.